into our columns, almost hoping, for the sake of humanity, that the statement of which he complained *was* exaggerated,—has seldom been surpassed. This *rara avis* will be thought a "black swan," we fear.

TRAFALGAR-SQUARE FOUNTAINS.

After many months of expectation and preparation the two fountains have at last made their appearance in the centre of the two large basins made to receive them, which have been so often and so facetiously reported upon by our ubiquitous friend *Punch*. The first thing that strikes the spectator, on looking at these tazze, is their diminutiveness when compared to the extent of the square, and also to the basins in which they are placed; there is no doubt but that they are a trifle too small. I venture to think myself that the effect would have been much better if the upper tazza of each of the fountains had been equal in size to the bottom one as now erected, and the bottom one itself some three feet larger in diameter.

Perhaps the difficulty of getting good sound blocks of granite, suitable for a basin of such large dimensions, was considered as a matter of too much uncertainty to run the risk of attempting; but still even admitting the probable difficulty, I think an attempt might have been made to get a block sufficiently large that the whole proportion of the fountains might have been very considerably increased, so as to render them suitable for the great space they have to fill.

The fact of their being surrounded on three sides with a high wall, and on the remaining side with a lofty column, is a certain argument that unless they were of large dimensions, they would appear *smaller than they really are*, and look comparatively insignificant when viewed in juxtaposition with the surrounding objects overtapping them on all sides.

Taken by themselves, without any reference to their local position, they are exceedingly chaste in design, plain, simple, and unadorned, as all works in granite ever should be, without any attempt at minute detail, or elaborate sculpture. Ornamental work, when made of granite, loses all its effect, if cut up into any thing like floriid design, tracery, or open-work, as it is quite contrary to the character of the stone; so far, then, these fountains are strictly in keeping, in my opinion, with the character of the material of which they are made, and, with the exception above alluded to, also in keeping with the prevailing design of the square itself. Not that I consider the design of the terraces, &c., the best that might have been adopted for such a situation, as I feel convinced that there are several errors in the artistic perspective of the general planning of the square and terraces, which, in certain positions, have any thing but a pleasing effect.

With respect to the workmanship and skill displayed in the finish of these fountains, I think it may be unhesitatingly stated, that there is nothing in the country of the same material to surpass, if indeed to equal them; they are made of fine, deep red-coloured Peterhead granite, so finely chiseled and polished, as to be equal in brilliance to the finest and smoothest statuary marble; on this head, at least, they have elicited the highest admiration from practical men and connoisseurs in such matters.

They are the work of the Messrs. Macdonald, who made the pedestal for the Wellington statue in front of the Royal Exchange, also a very beautiful specimen of granite work; the hydraulic part of the matter is intrusted to Messrs. Easton and Amos, who are well known for their practical acquaintance with such matters; the water to supply the fountains is obtained from two wells, one in front of the National Gallery and the other behind it which are connected together by means of a tunnel, that of course passes directly under the National Gallery, behind which is also placed the engine-house for raising the required water into the tanks, &c., before it is forced through the fountains, which will be at the rate of between five and six hundred gallons per hour: it will be forced up a considerable height from the central jet; it will then be received into the first or upper basin or tazza, over the sides of which it will flow into the second basin or tazza in a continuous stream, and from hence into the large basin; in addition to which there are four spouts from the dolphin's heads immediately under the bottom basin. The lower fall, however, would be much more effective if it stood on a higher base than at present.

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JOHN SMEATON, THE ENGINEER.

Mr. Parker has commenced the publication of a series of instructive books at low prices for general use in families, under the title of "Collections in Popular Literature." They include history, biography, science, travels, and miscellanies, and though uniform in appearance and object, each work is complete in itself. To one of the volumes of this series, in the class of science, we have already referred. The following sketch of the life of Smeaton is from the biographical series, wherein it is proposed to connect with the life of an individual the history of the particular department of knowledge that he aided to extend. Thus, with Watt, the steam-engine would be spoken of; with Brindley, canals; and with Smeaton, light-houses. In our present extracts we confine ourselves to the individual, and may perhaps speak of his great undertakings hereafter.

John Smeaton was born the 28th of May, 1724, at Austhorpe, near Leeds, Yorkshire. Little is recorded of his parentage or early education: but we find that his father was a respectable attorney, and that the family lived in a house built by the grandfather of the younger Smeaton.

Smeaton seems to have been born an engineer. The originality of his genius and the strength of his understanding appeared at a very early age. His playthings were not the toys of children, but the tools men work with; and his greatest amusement was to observe artificers, and to ask them questions. Having watched some millwrights at work, he conceived the idea of constructing a windmill, and, to the alarm of his friends, was one day perceived on the top of his father's barn attempting to fix his model. On another occasion he accompanied some men who went to fix a pump at a neighbouring village, and observing them cut off a piece of bored pipe, he managed to procure it, and made a working model of a pump that raised water very well. These anecdotes are related of him while he was yet a mere child in petticoats, and probably before he had attained his sixth year. At the age of fourteen or fifteen he had made for himself an engine to turn rose-work, and he made several presents to his friends of boxes in wood and ivory, as specimens of its operation.

In the year 1742, Mr. Holmes, afterwards his partner in the Deptford Water-works, visited Smeaton, and could not conceal his astonishment at the mechanical skill displayed by the young engineer; he forged his iron and steel and melted his metal; he had tools of every sort for working in wood, ivory, and metals. He had made a lathe, by which he had cut a perpetual screw in brass, a thing very little known at that day. All these resources were not furnished to him by rich and wealthy parents, nor had he the advantage of masters in his various pursuits; on the contrary, by the strength of his genius, and by indefatigable industry, he acquired at the age of eighteen so extensive set of tools, and the art of working in most of the mechanical trades, and Mr. Holmes, himself a good mechanic, says that few men could work better.

Astronomy was one of his most favourite studies, and he contrived and made several astronomical instruments for himself and friends. In later years, after fitting up an observatory at his house at Austhorpe, he devoted much time to it when he was there, even in preference to engineering.

Smeaton's father being an attorney, was desirous to educate his son for the same profession. He was therefore sent to London in 1742, where during a few terms he attended court; but finding the legal profession distasteful to him, and not to suit "the bent of his genius," he wrote a strong memorial on the subject to his father, who had the good sense to allow him from that time to pursue the path which nature pointed out to him. He continued to reside in London, and about the year 1750 he commenced the business of mathematical instrument maker. In 1751 he invented a machine to measure a ship's way at sea, and a compass of peculiar construction, touched by Dr. Knight's artificial magnet. He made two voyages in company with Dr. Knight for the purpose of ascertaining the merits of these contrivances.

In 1753 he was elected a fellow of the Royal Society, and his admirable papers inserted in the Transactions of that body sufficiently evince how highly he deserved that distinction. In 1759 he received by an unanimous vote their gold medal, for his paper entitled "An Experimental Inquiry concerning the natural powers of wind and water to turn mills and other machines depending on a circular motion." This paper was the result of experiments made on working models in 1752 and 1753, but not communicated to the society till 1759, by which time he had had abundant opportunity of applying these experiments to practice in a variety of cases, and for various purposes, so as to assure the society that he had found them to answer. He discovered by these means that wind and water could be made to do one-third more than was before known. In the year 1754 he made a voyage to Holland, travelling for the most part on foot, or in the trekschuiten or drag-boats, the national conveyance of the country, and thus made himself acquainted with the most remarkable works of art in the low countries.

In December, 1755, the Eddystone Light-house was burnt down. Mr. Weston the chief proprietor, and others, were desirous of rebuilding it in the most substantial manner, and through the recommendation of the Earl of Macclesfield, whose friendly conduct to Smeaton we have already noticed, they were induced to appoint Smeaton as the most proper person to rebuild it.

Smeaton undertook the work, and completed it in the summer of 1759. The completion of the work does not seem to have had the immediate effect of procuring him full employment as a civil-engineer: in 1764, being in Yorkshire, he offered himself a candidate for the office of one of the receivers to the Greenwich Hospital estates;* and on the 31st December in that year he was appointed, at a full board at Greenwich Hospital, in a manner highly flattering to himself. In this appointment he was greatly assisted by his partner Mr. Walter, who managed the accounts, and left Smeaton leisure and opportunity to exert his abilities on public works, as well as to make many improvements in the mills, and in the estates of Greenwich Hospital. By the year 1775 he had so much business as an engineer, that he wished to resign this appointment, but was prevailed upon to continue in the office about two years longer.

Among the many valuable public services of Smeaton a few only can be mentioned in this place. He completed the erection of new lighthouses at Spurn Head at the mouth of the Humber: he built the fine bridge over the Tay at Perth; he laid out the line of the great canal connecting the Forth and Clyde, and made the river Calder navigable; a work that required great skill and judgment, on account of its impetuous floods. On the opening of the great arch at London-bridge by throwing two arches into one, and the removal of a large pier, the excavation around and under the starlings was so considerable, that the bridge was thought to be in great danger of falling. Smeaton was then in Yorkshire, but was sent for by express, and arrived with the utmost dispatch: on his arrival the fear that the bridge was about to fall prevailed so generally, that few persons would pass over or under it. Smeaton applied himself immediately to examine it, and to sound about the starlings as minutely as possible: his advice to the committee was to repurchase the stones which had been taken from the middle pier, then lying in Moorfields, and to throw them into the river to guard the starlings. This advice was adopted with the utmost alacrity, by which simple means the bridge was probably saved from falling, and time afforded for securing it

* This was the Derwentwater estate, which was forfeited in the year 1715, and its revenues applied by Parliament towards the funds of Greenwich Hospital. It consists of mines of lead, containing much silver, as well as lands. It required careful management, and the knowledge of mining details to make it productive. Smeaton contrived more efficient machines and better modes of working the mines and managing the estate.